

PULSE CROP ECONOMICS

COMPARISON TO OTHER CROPS & ROTATION ECONOMICS

July 14, 2010

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Why is the developing pulse crop industry important to the Montana Department of Agriculture?

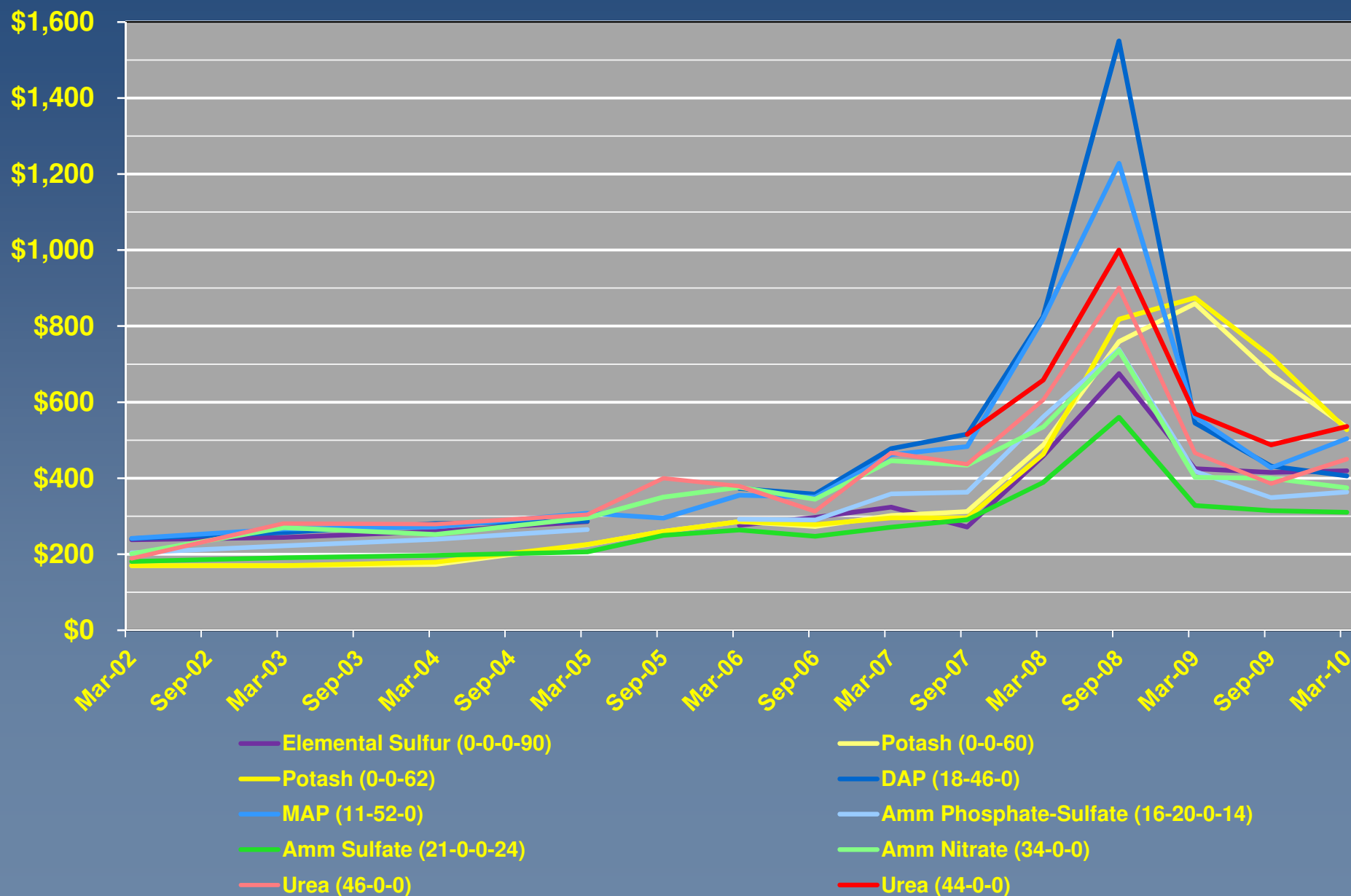
Why is this important to you?

Pulse crops appear to be a good opportunity for Montana's farmers:

- Competitive Economics
- Rotational Benefits
 - Boost in yield & quality of following cereal crops
 - Help break disease cycles
 - Help deal with insect problems (sawfly)
 - Change carbon-nitrogen ratio (improve soil health)
 - Weed Control
- Reduced fertilizer inputs
- Possibility of more intensive rotations
- Diversification: of production & marketing risks, buyers, markets
- Flexibility: grain, forage, cover crop

The role of fertilizer in the year-to-year comparisons:

State Average Fertilizer Price 2002 - 2010 (\$/ton)

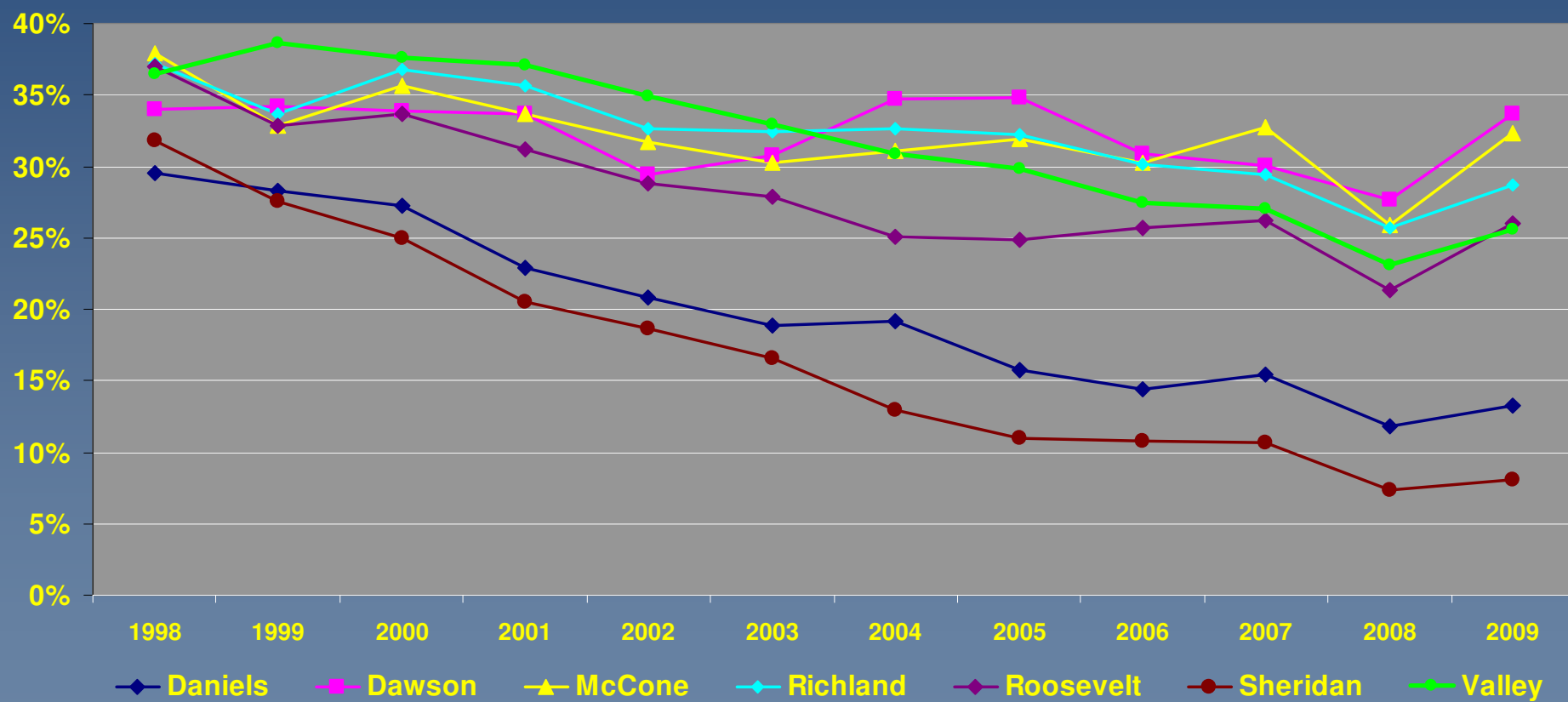


ACREAGE TRENDS IN NORTHEAST MONTANA

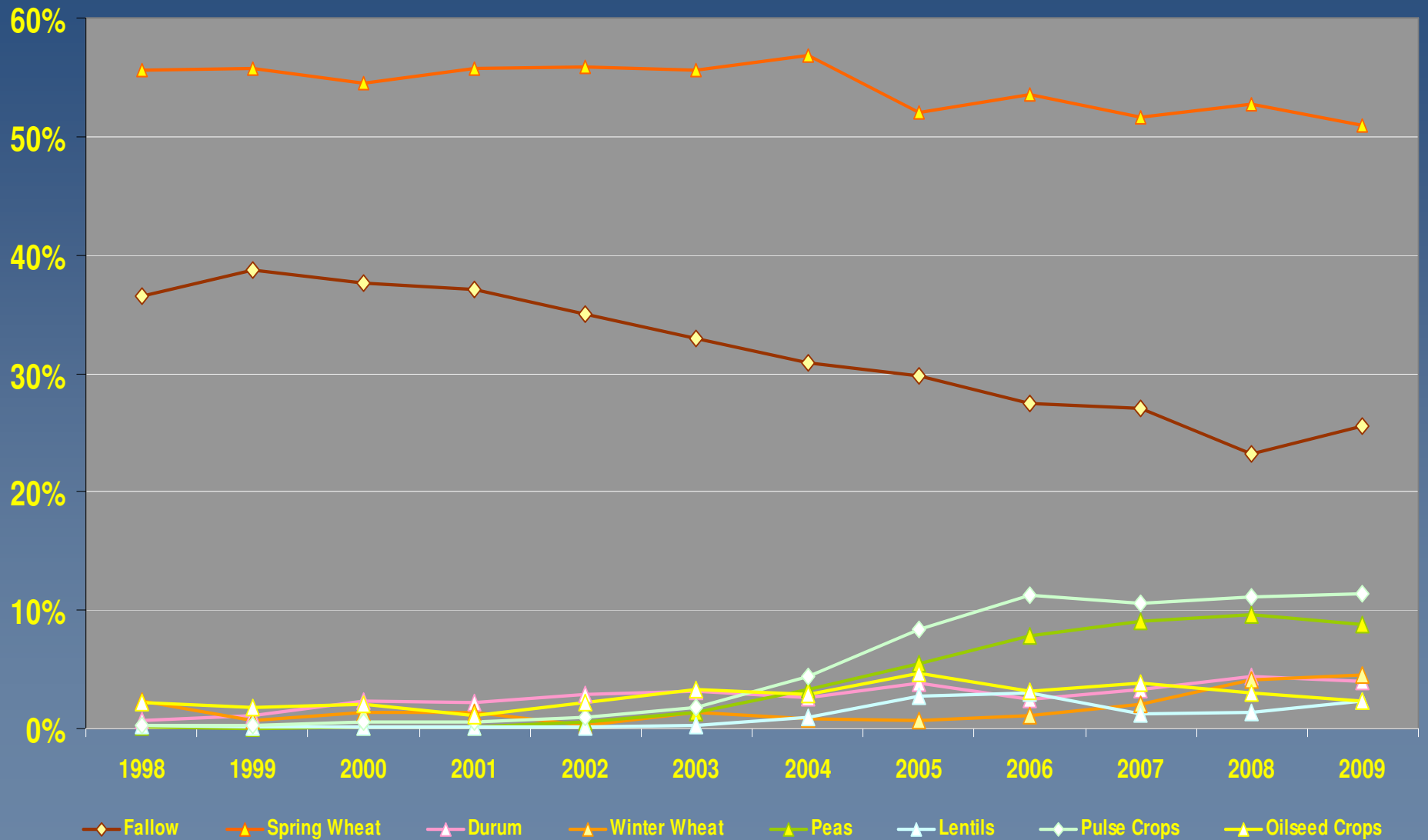
1998 - 2009

**Pulse Crop Impact on
Fallow & Wheat Acres**

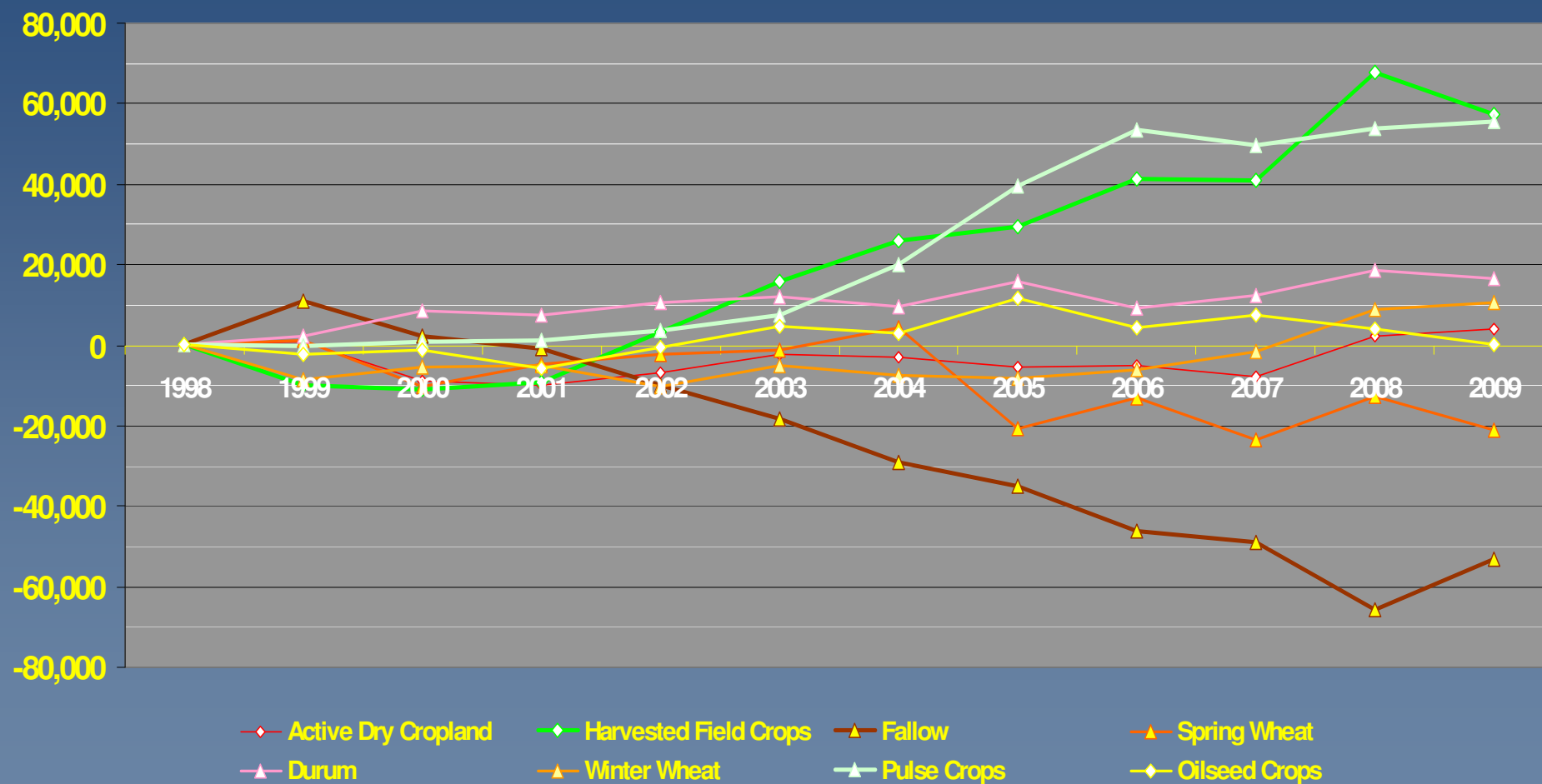
Northeast Montana Dryland Fallow Acres - as a % of Active Dry Cropland



Valley County - % of Active Dry Cropland



Valley County Dry Cropland Change Since 1998 (acres)



Why is the developing pulse crop industry important to the Montana Department of Agriculture?

Why is this important to you?

Opportunity for increased agricultural processing in Montana

- More Jobs
- More economic activity in our communities
 - Opportunity for spin-off businesses
 - Helps keep existing businesses open
 - Helps fight trend of declining rural populations
 - Diversification makes local economics more stable
- Better & more dependable prices: processing creates strong markets
- Allows us to ship products that are worth more
- Byproduct benefits local livestock feeding and dairy industries

PULSE CROP ECONOMICS

Approach: **Comparison of Returns After Direct Costs**

Why compare returns after direct costs?

- Majority of indirect costs are fixed costs (*within relevant ranges of scale*) & are sunk regardless of the crop produced.
 - Equipment
 - Labor
 - Land ownership / cash rent (*direct, but not dependent upon crop*)
- In general - very little difference in fixed / indirect costs between crops

PULSE CROP ECONOMICS

Approach: Comparison of Returns After Direct Costs

Revenue – Value of Crop

- Government payments assumed not to change with crop selection

Direct Costs:

- Seed
- Herbicides
- Fungicides
- Insecticides
- Fertilizer – replacement of NPK & S for yield harvested
- Crop Insurance
- Fuel & Lubrication for Field Operations
- Trucking from Farm to Delivery Point
- Operating Interest
- N Credit for Peas & Lentils – value of 10 lbs N / acre

PULSE CROP ECONOMICS

DRYLAND PRODUCTION

REGIONAL NE MT DRYLAND AVERAGE YIELDS: (2004 - 2009)

	Low	Ave	High
SW (bu/acre)	20	26.5	33
SW-Recrop (bu/acre)	14	21.2	29
Durum (bu/acre)	20	26.7	34
Durum-Recrop (bu/acre)	14	21.9	33
WW (bu/acre)	32	35.25	40
Barley (bu/acre)	27.0	36.8	47
Barley-Recrop (bu/acre)	19	32.2	44
Pea (lb/acre)	1,020	1,495	2,020
Lentil (lb/acre)	590	1,107	1,420
Chickpea (lb/acre)	860	1,150	1,630
Mustard (lb/acre)	380	593	930
Canola (lb/acre)	480	905	1,410
Flax (lb/acre)	504	742	1,064
Safflower (lb/acre)	540	773	930
Camelina (lb/acre)	238	606	820

2010 PRICE ESTIMATES *(mostly NDSU's prediction for 2010)*

Spring Wheat (14%)

\$5.30 / bu

Current Price: \$5.37

Durum

\$5.96 / bu

Current Price: \$3.68

Winter Wheat (Ord)

\$4.59 / bu

Current Price: \$3.42

Malt Barley

\$3.61 / bu \$7.52 / cwt

Current Price: \$2.88/bu \$6.00/cwt

Feed Barley

\$2.31 / bu \$4.81 / cwt

Current Price: \$1.84/bu \$3.82/cwt

2010 PRICE ESTIMATES *(mostly NDSU's prediction for 2010)*

Peas

\$6.00 / bu \$10.00 / cwt

Green *Cruiser-type*
(No. 1)

Current Price: \$4.85/bu \$8.08/cwt

Canadian Sept/Oct/Nov Offers: \$4.55 - \$5.51/bu

Med. Yellow (No. 1)

Current Price: \$4.74/bu \$7.89/cwt

Canadian Sept/Oct/Nov Offers: \$3.64 - \$4.07/bu

Feed

Current Price: \$2.60/bu \$4.33/cwt

Canadian Sept/Oct/Nov Offers: \$2.40 - \$2.64/bu

2010 PRICE ESTIMATES *(mostly NDSU's prediction for 2010)*

Lentil

\$19.00 (Chad) – used in charts

\$24.00 / cwt (NDSU)

**Laird (Large Green)
No. 1**

Current Price: \$31.91/cwt

Canadian Sept/Oct/Nov Offers: \$19.64 - \$24.67/cwt

**Richlea (Medium
Green) No. 1**

Current Price: \$30.90/cwt

Canadian Sept/Oct/Nov Offers: \$21.80 - \$23.72/cwt

**Eston (Small Green)
No. 1**

Current Price: \$24.44/cwt

Canadian Sept/Oct/Nov Offers: \$17.25 - \$23.72/cwt

Red No. 1

Current Price: \$23.72/cwt

Canadian Sept/Oct/Nov Offers: \$19.64 - \$22.76/cwt

2010 PRICE ESTIMATES *(mostly NDSU's prediction for 2010)*

Chickpea

\$27.50 (Chad)

\$23.00 / cwt (NDSU) – used in charts

Kabuli 9mm (No. 1)

Current Price: \$28.69/cwt

Canadian S/O/N Offers: \$26.35 – \$29.23/cwt

Kabuli 8mm (No. 1)

Current Price: \$20.77/cwt

Canadian S/O/N Offers: \$22.90 – \$25.39/cwt

B-90 (No. 1)

Current Price: \$17.78/cwt

Canadian S/O/N Offers: \$16.39 – \$18.21/cwt

Desi

Current Price: \$24.44/cwt

Canadian S/O/N Offers Desi: \$22.23 - \$24.67/cwt

2010 PRICE ESTIMATES *(mostly NDSU's prediction for 2010)*

Mustard

\$23.80 / cwt

Current Price: \$20.82

Canola

\$16.90 / cwt

Current Price: \$18.24

Flax

\$8.04/bu / \$14.36/cwt

Current Price: \$8.30/bu / \$14.80/cwt

Safflower

\$19.20 / cwt

Current Price: ???

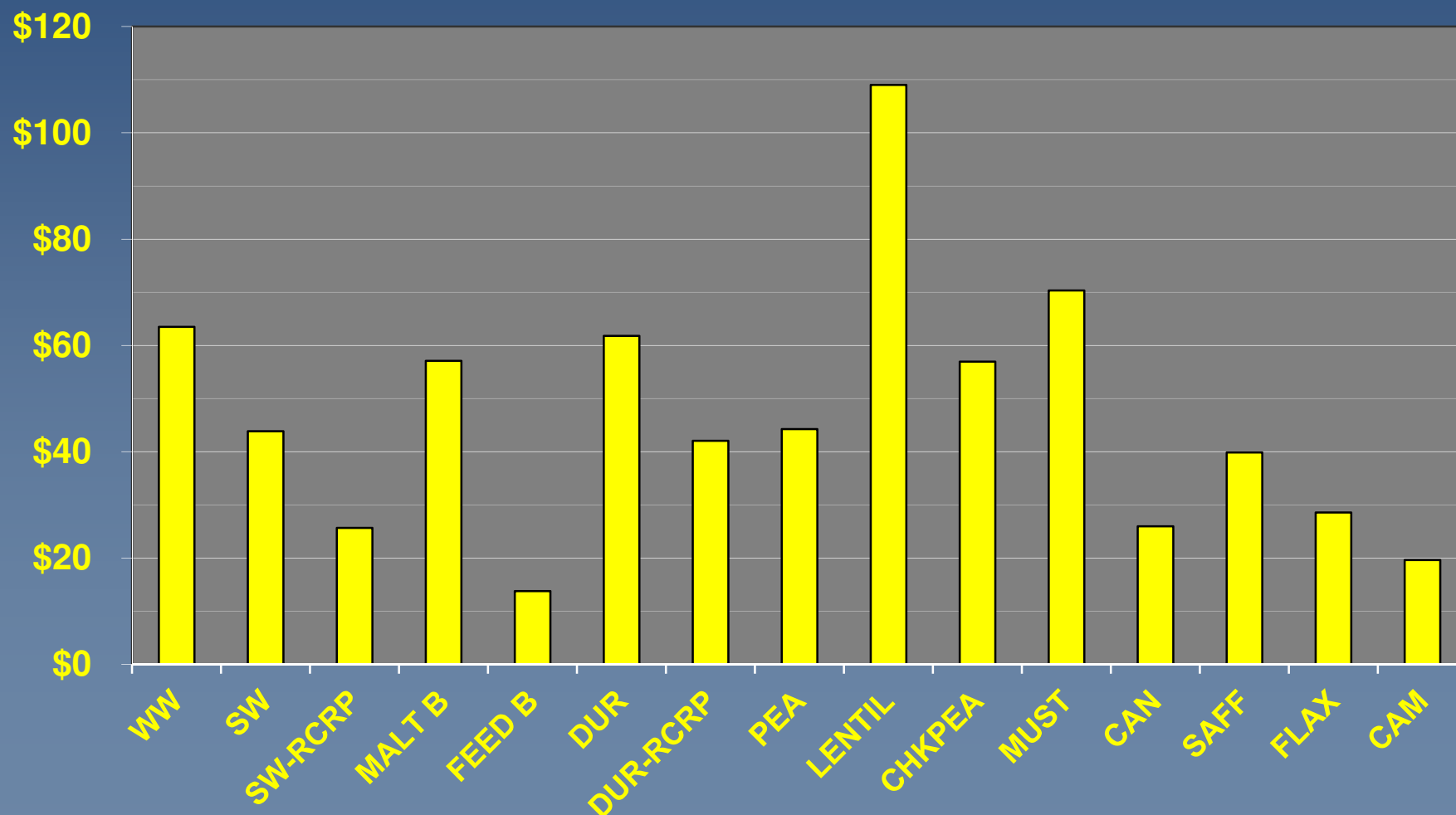
Camelina

\$14.00 / cwt

Current Price: ?????

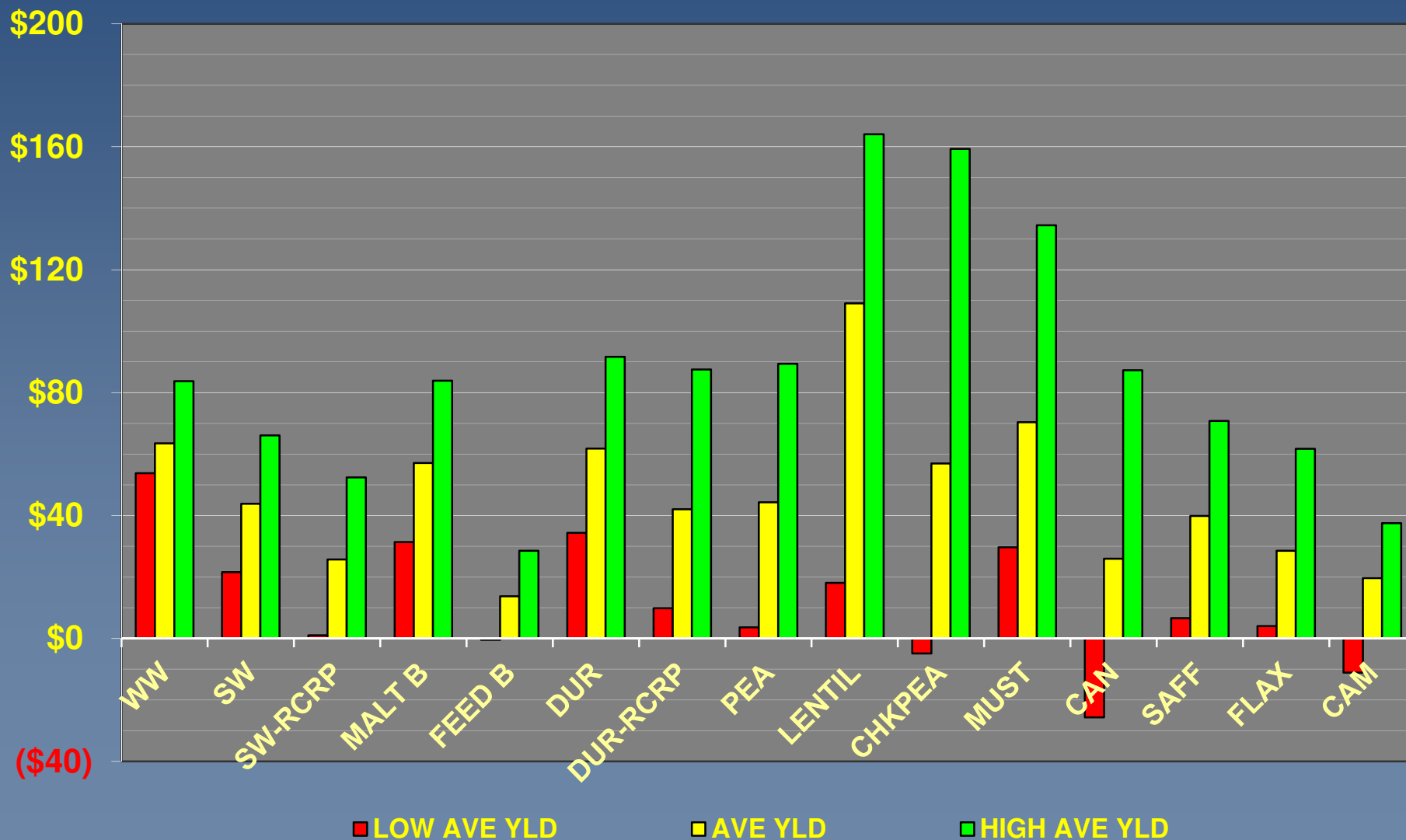
CROP COMPARISONS – 2010 Pre-Season Estimates (Regional Average Yields 2004 – 2009)

Return After Direct Costs
2010 Price / Cost Levels - Northeast Montana
Recent Average Yields (\$/acre)



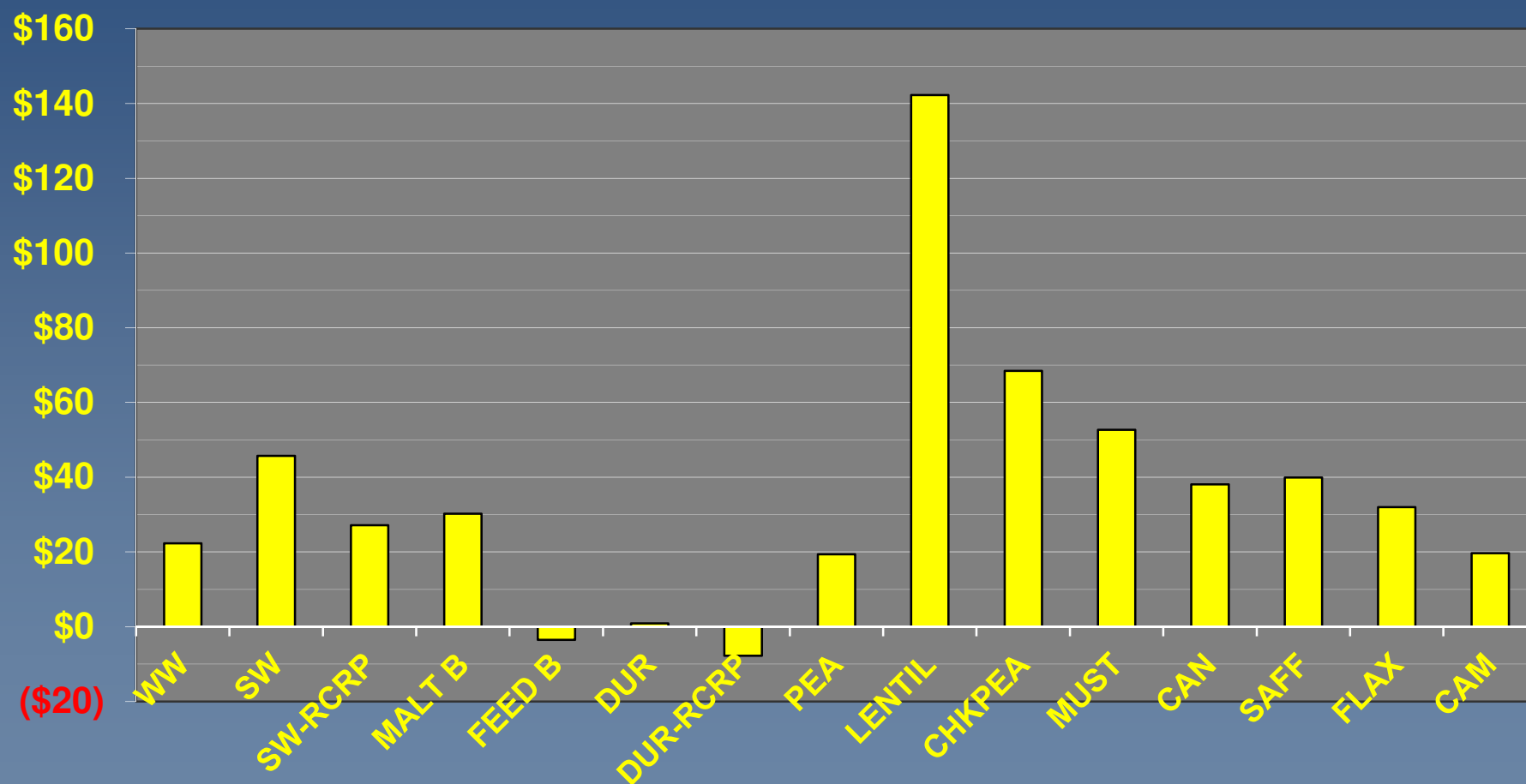
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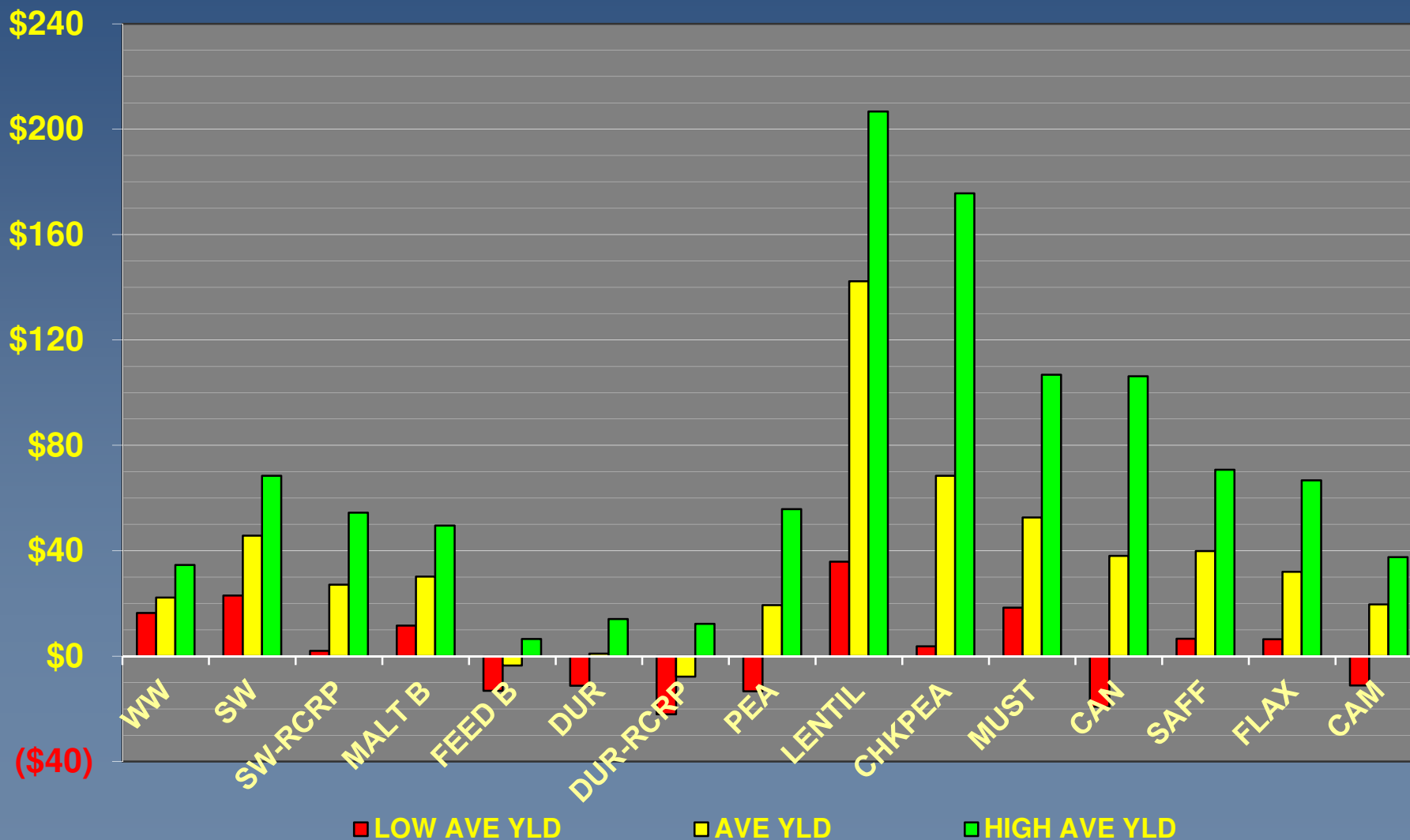
CROP COMPARISONS – 2010 Current Guess (Regional Average Yields 2004 – 2009)

Return After Direct Costs
2010 Price / Cost Levels - Northeast Montana
Recent Average Yields (\$/acre)



CROP COMPARISONS – 2010 Current Guess (Regional Average Yields 2004 – 2009)

Return After Direct Costs
2010 Price / Cost Levels - Northeast Montana
(\$/acre)



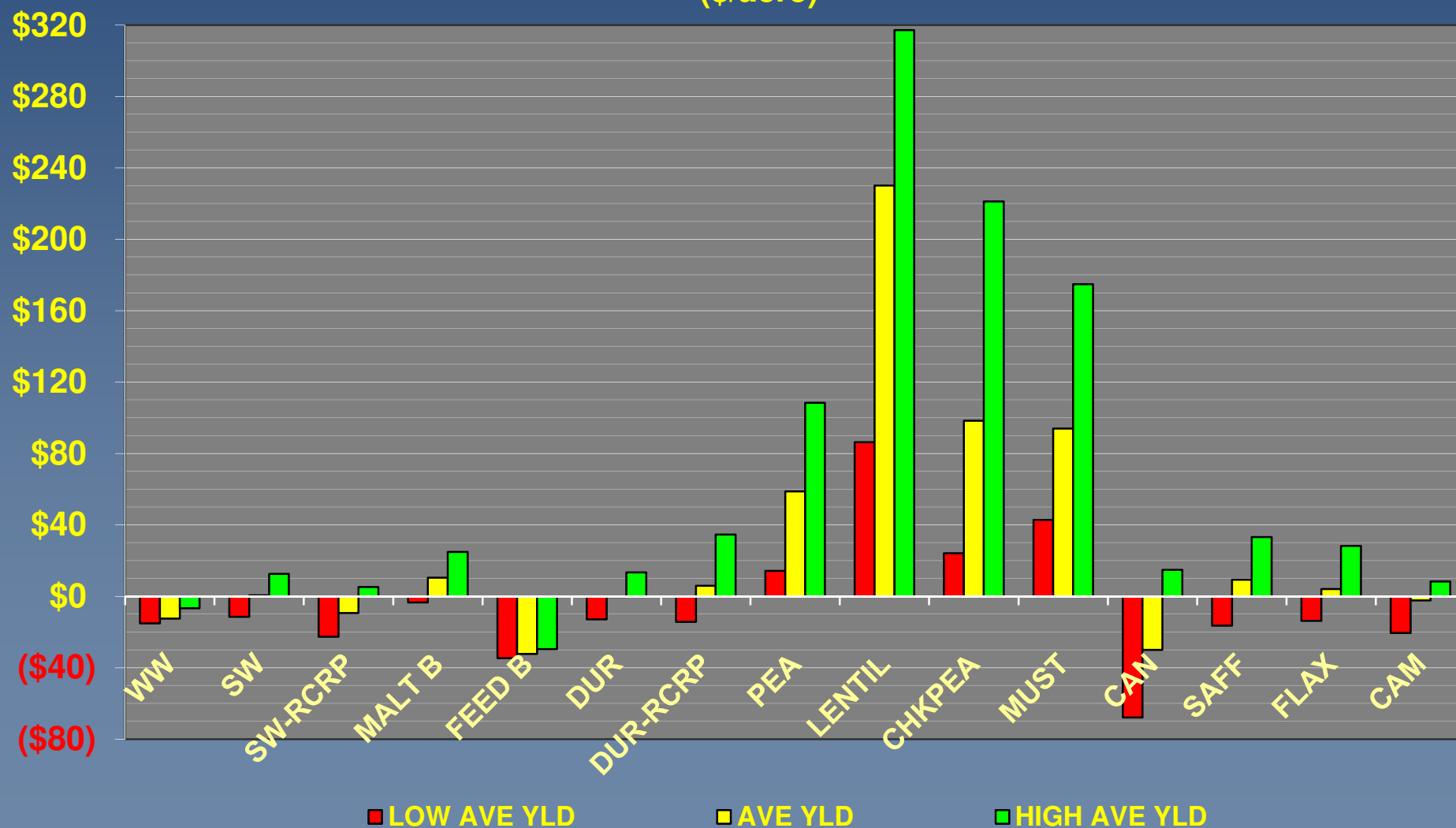
PULSE CROP ECONOMICS

What did it look like in past years?

PULSE CROP ECONOMICS

CROP COMPARISONS – 2009 (Regional Average Yields 2004 – 2009)

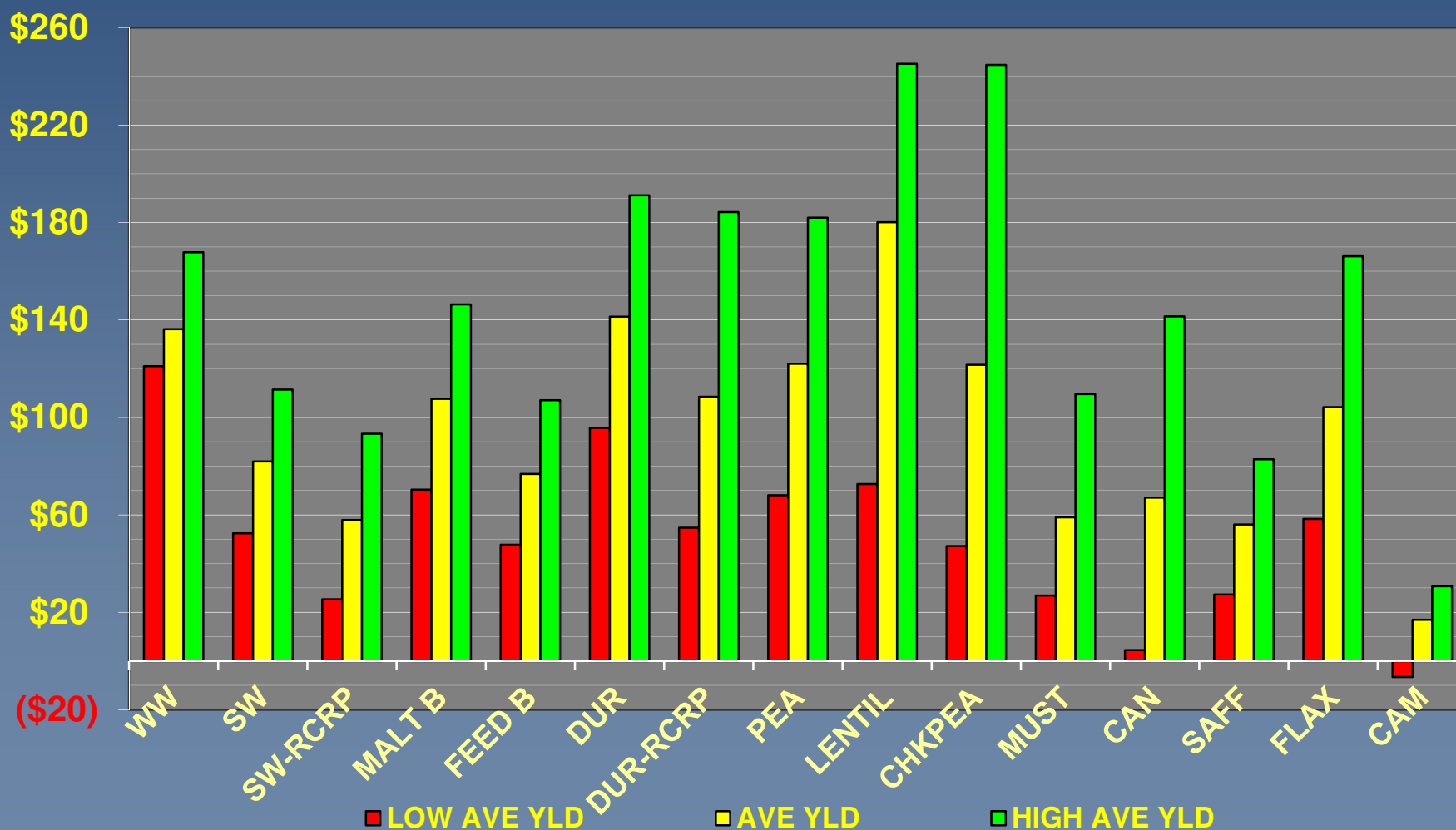
Return After Direct Costs
2009 Price / Cost Levels - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

CROP COMPARISONS – 2007 (Regional Average Yields 2004 – 2009)

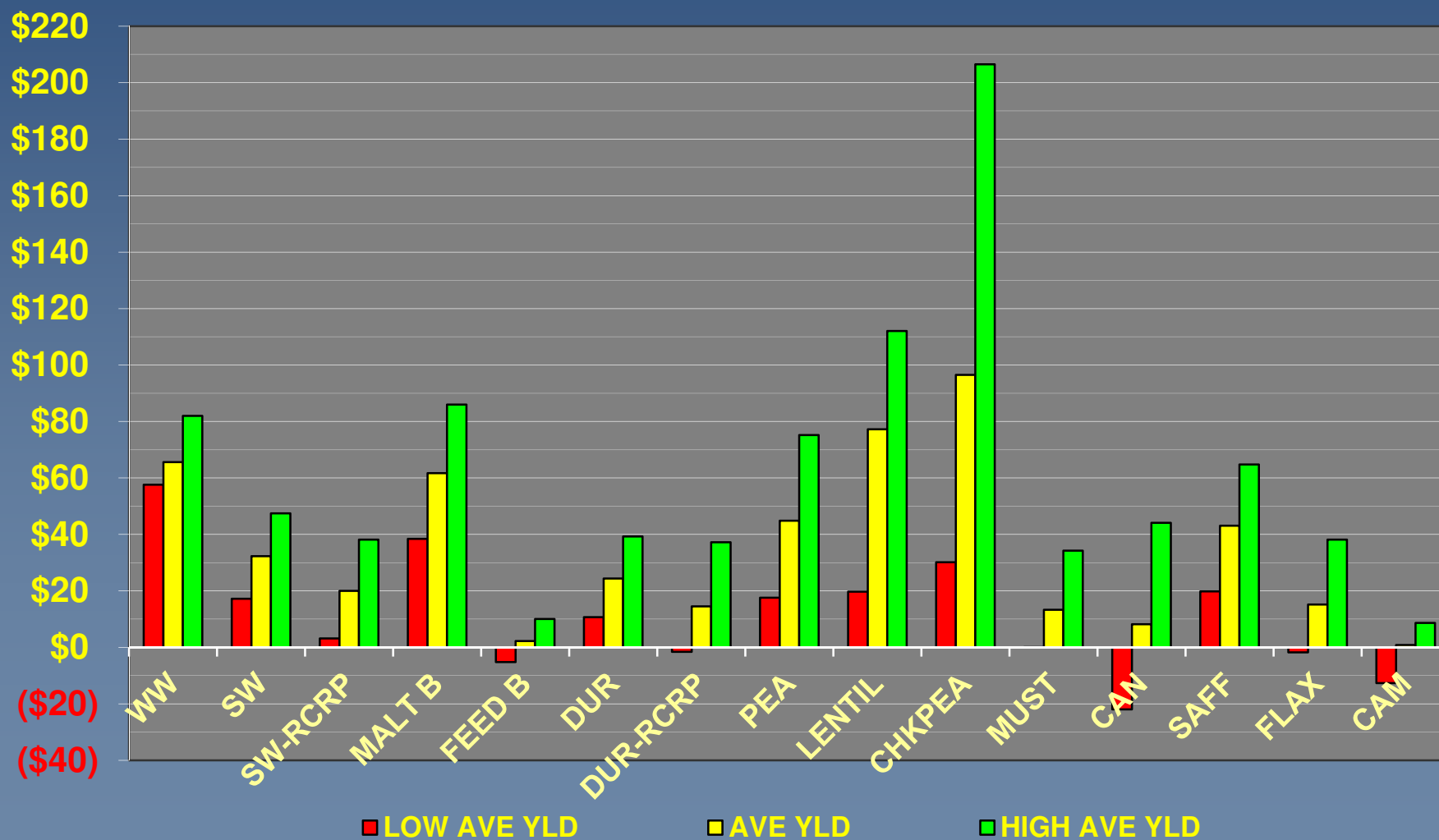
Return After Direct Costs
2007 Price / Cost Levels - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

CROP COMPARISONS – 2006 (Regional Average Yields 2004 – 2009)

Return After Direct Costs
2006 Price / Cost Levels - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

ROTATION COMPARISONS

Approach: Comparison of Average Annual Returns After Direct Costs

Why compare rotations instead of individual crops?

- Average annual returns are needed for comparability
- Rotations may vary for a variety of reasons and objectives
 - Cropping Intensity
 - Moisture & Weather Conditions
 - Integrated Pest / Disease Management / Soil Building Objectives
 - Income Diversification & Risk Management Decisions
 - Government Program Requirements (CSP)
 - Carbon Credit Trading Requirements
- Comparing rotations acknowledges that there are constraints to sequences of crops

PULSE CROP ECONOMICS

ROTATION COMPARISONS

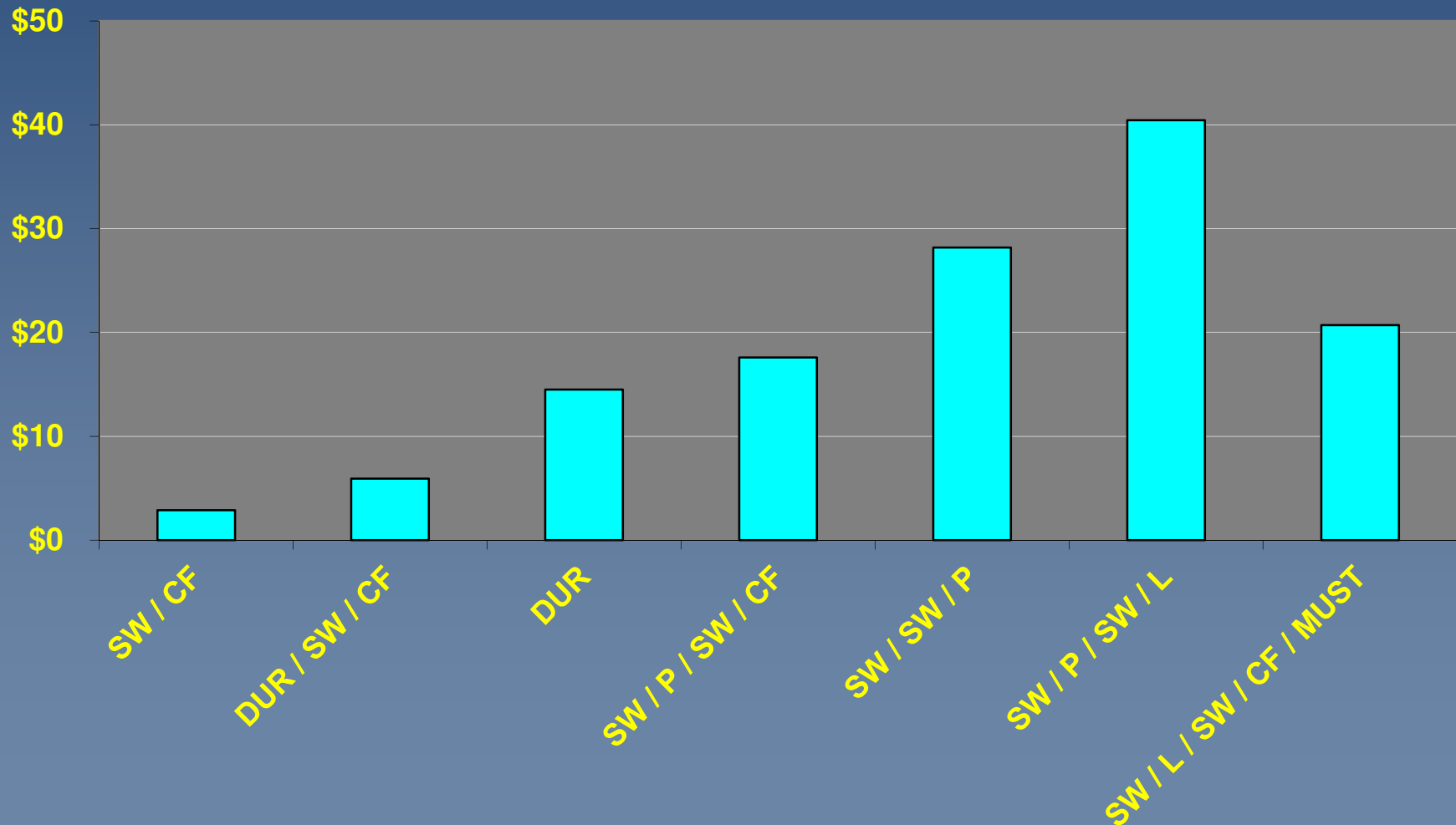
Comparison for four different periods:

- 2006**
- 2007**
- 2009**
- 2010**

PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2006 (Regional Average Yields 2004 – 2009)

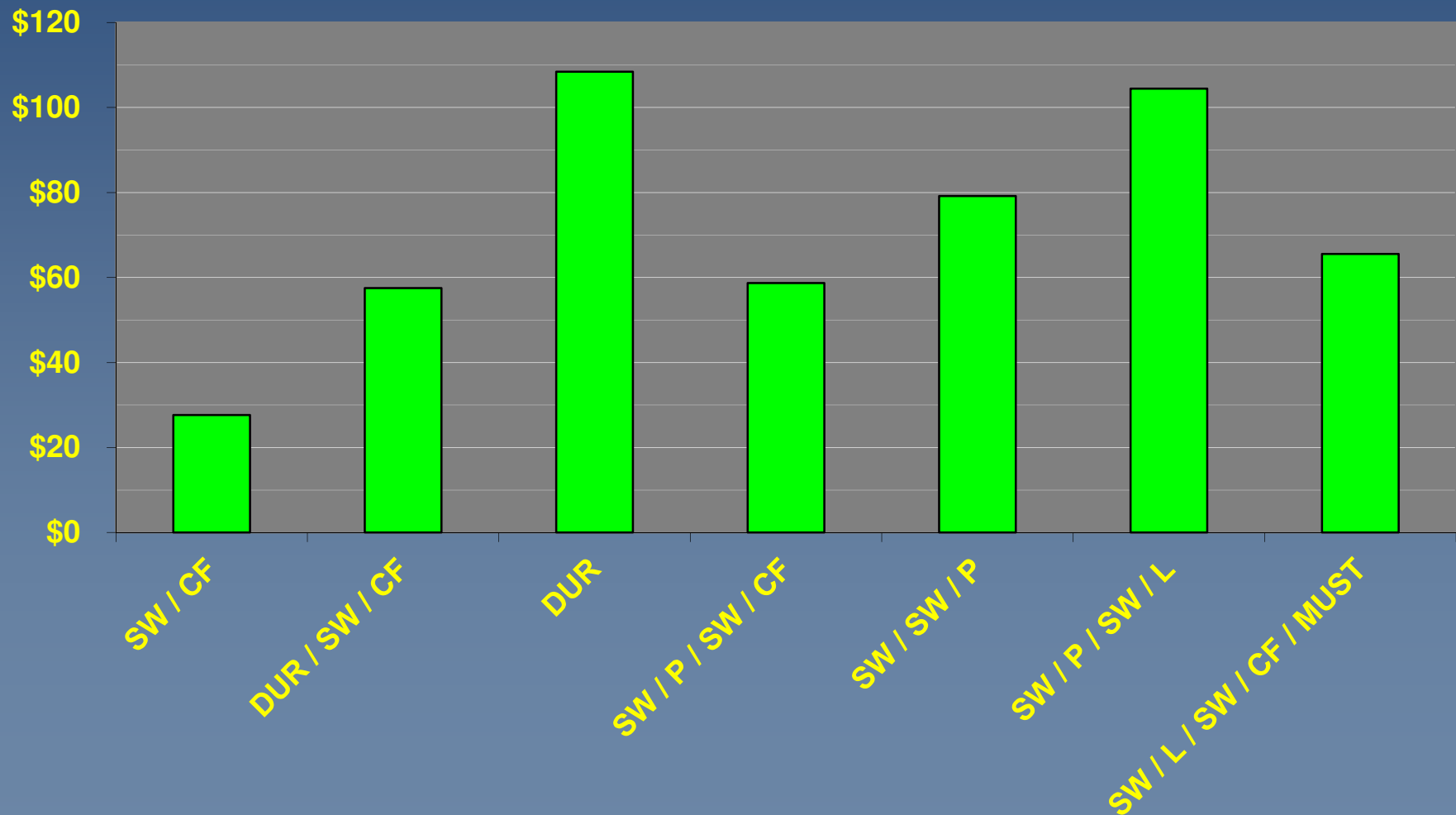
Ave. Annual Return After Direct Costs
2006 Price / Cost Levels - Average Yields - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2007 (Regional Average Yields 2004 – 2009)

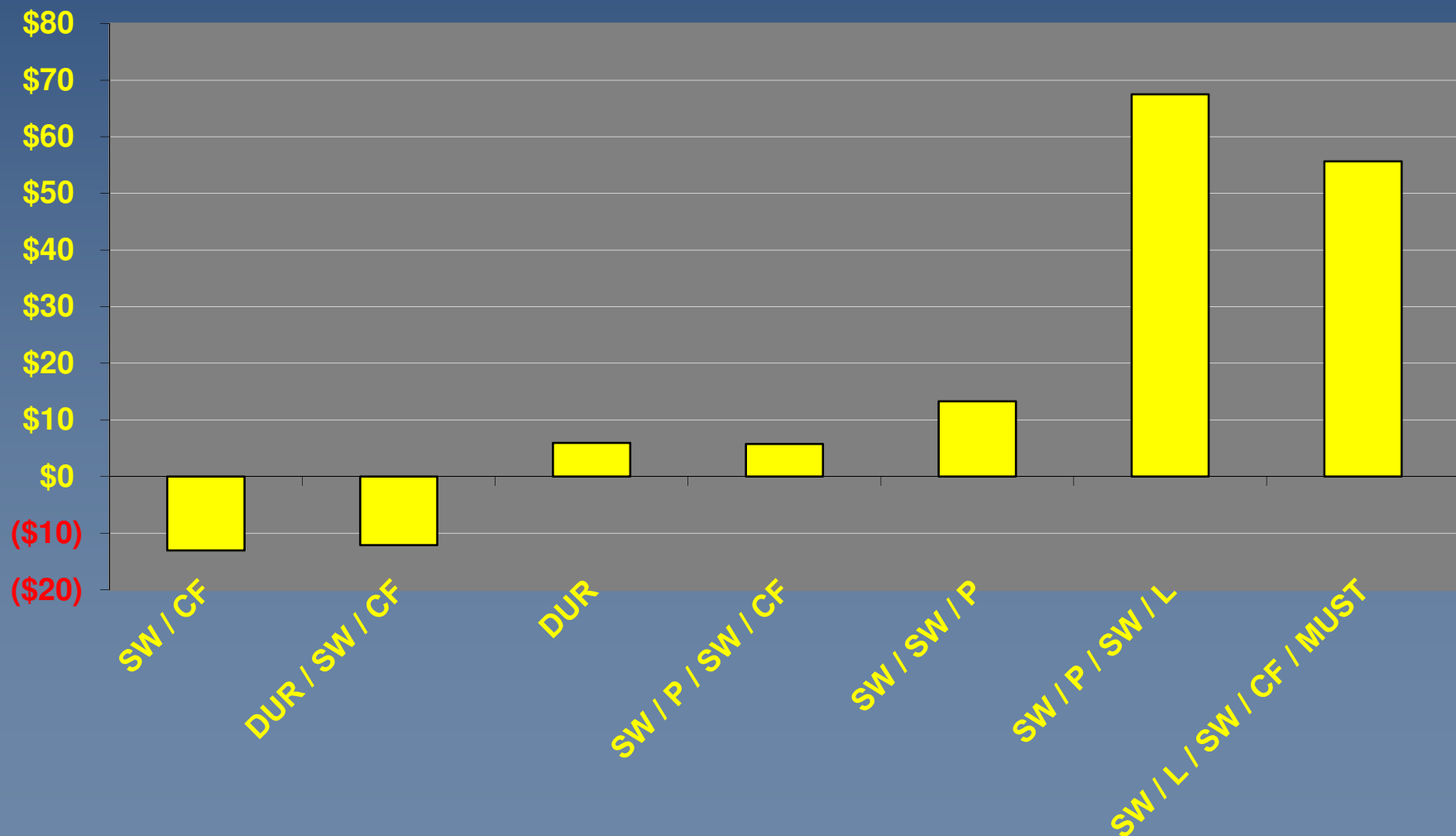
Ave. Annual Return After Direct Costs
2007 Price/Cost Levels - Average Yields - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2009 (Regional Average Yields 2004 – 2009)

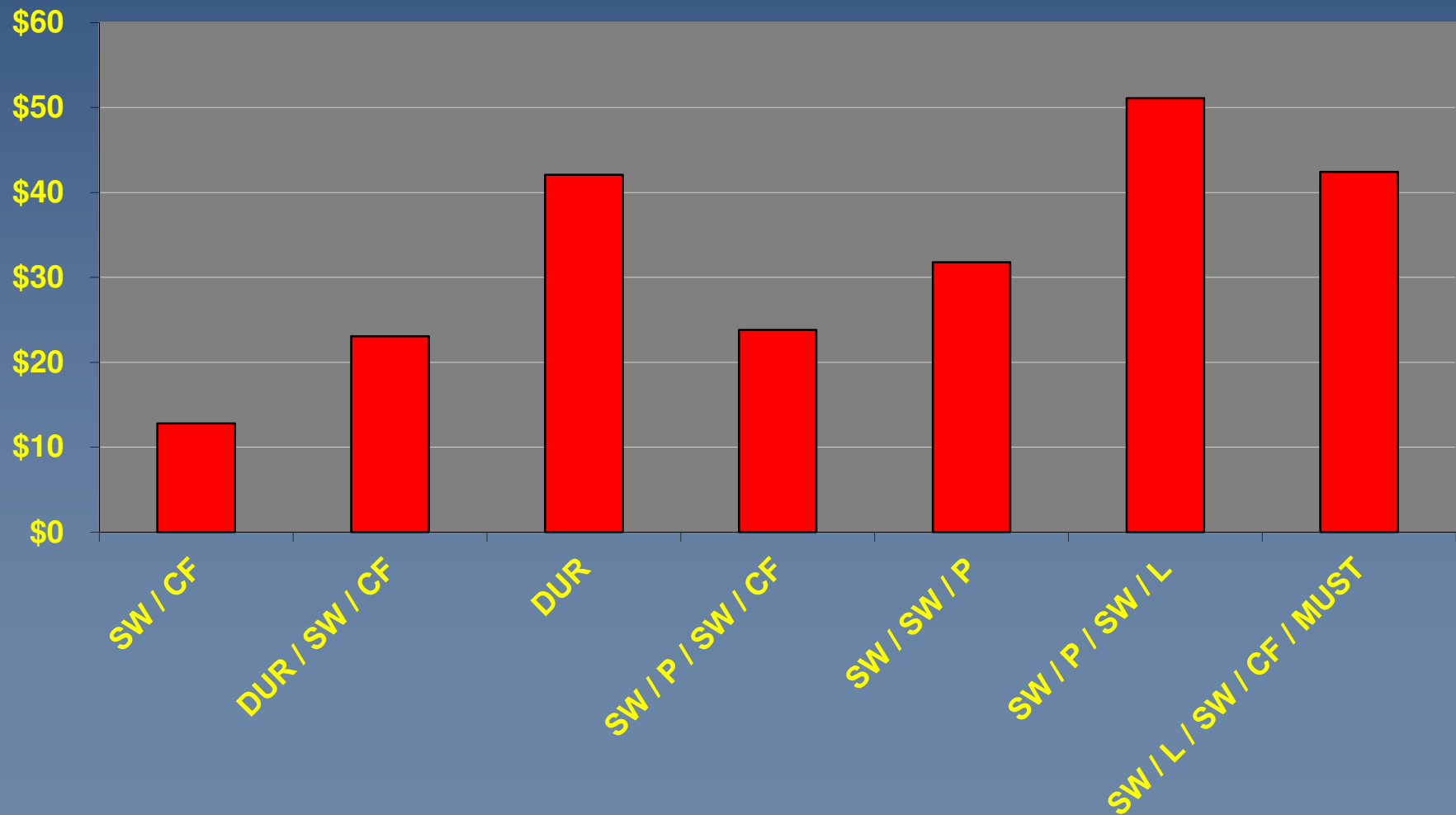
Ave. Annual Return After Direct Costs
2009 Price/Cost Levels - Average Yields - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2010 (Regional Average Yields 2004 – 2009)

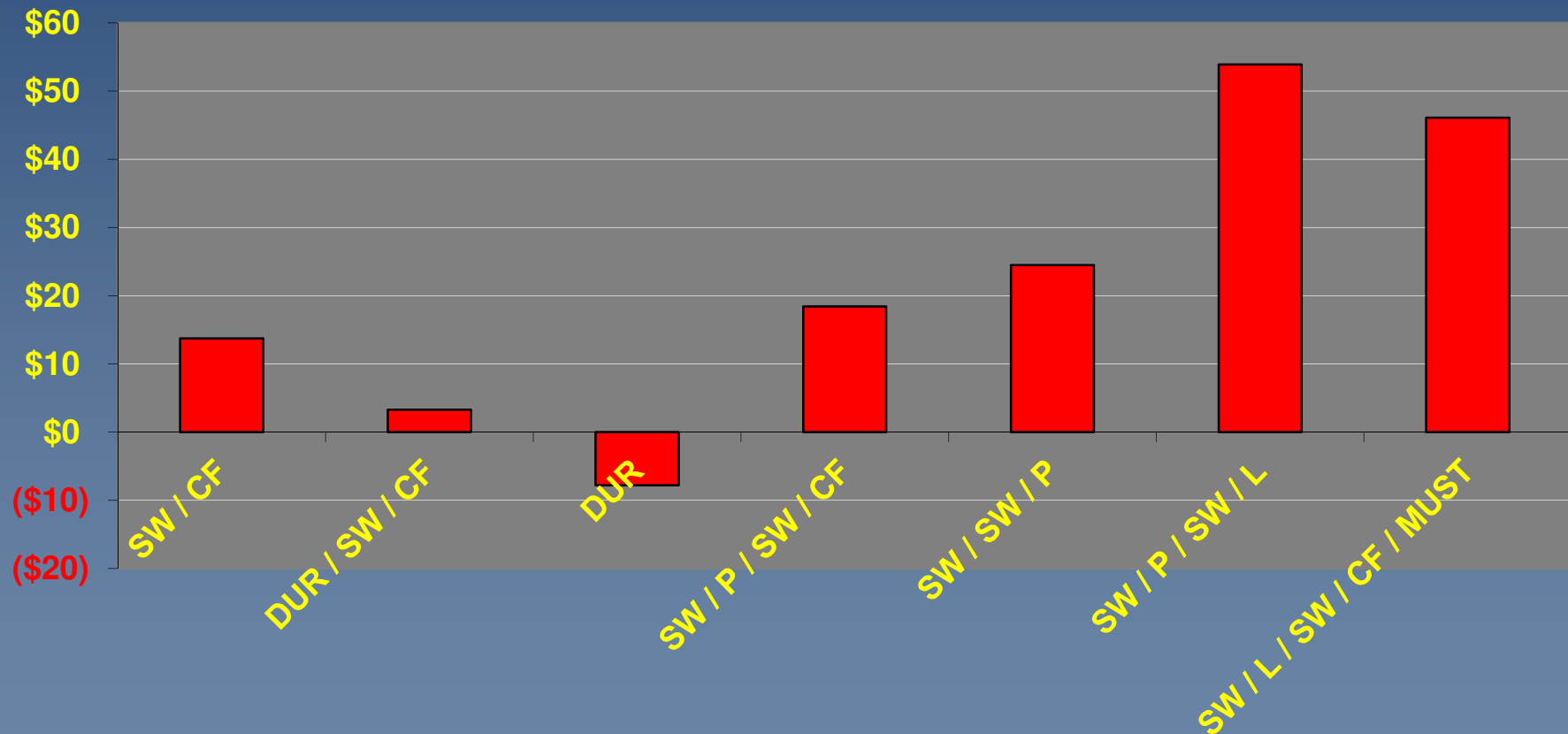
Ave. Annual Return After Direct Costs: Pre-Season Estimates
2010 Price/Cost Levels - Average Yields - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

ROTATION COMPARISONS – 2010 (Regional Average Yields 2004 – 2009)

Ave. Annual Return After Direct Costs: **Current Guess**
2010 Price/Cost Levels - Average Yields - Northeast Montana
(\$/acre)



PULSE CROP ECONOMICS

Estimated average returns of rotations **did not** incorporate rotational benefits:

- Yield Enhancement
- Quality Improvement

WHAT IF THEY DID?

PULSE CROP ECONOMICS

ROTATION COMPARISONS – SHOWING ROTATION BENEFITS (YIELD)

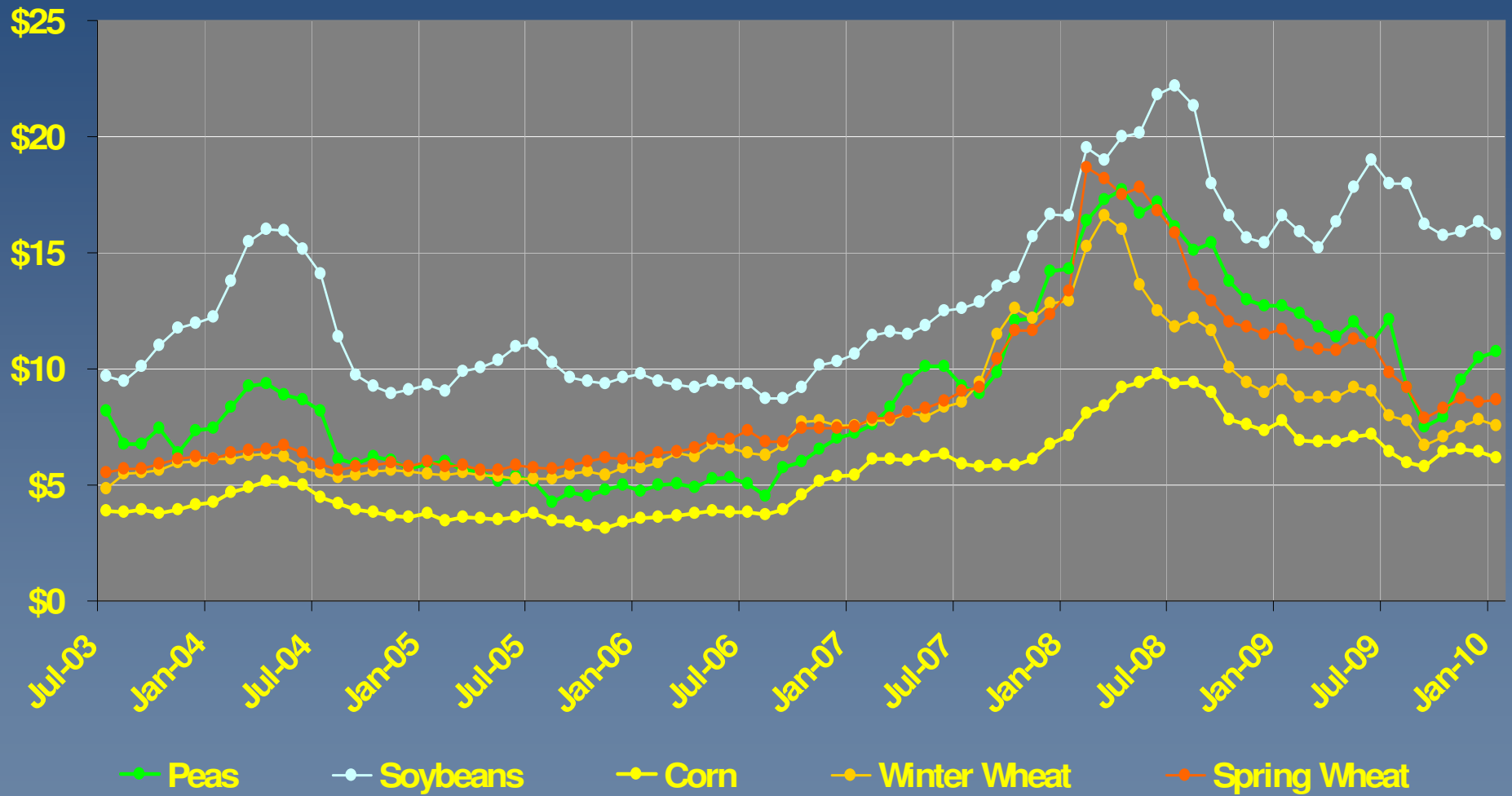
Northeast Montana Dryland Crop Rotations
2010 Prices/Costs / Average Yields Pre-Season Estimates
Average Return After Direct Costs (\$/acre)



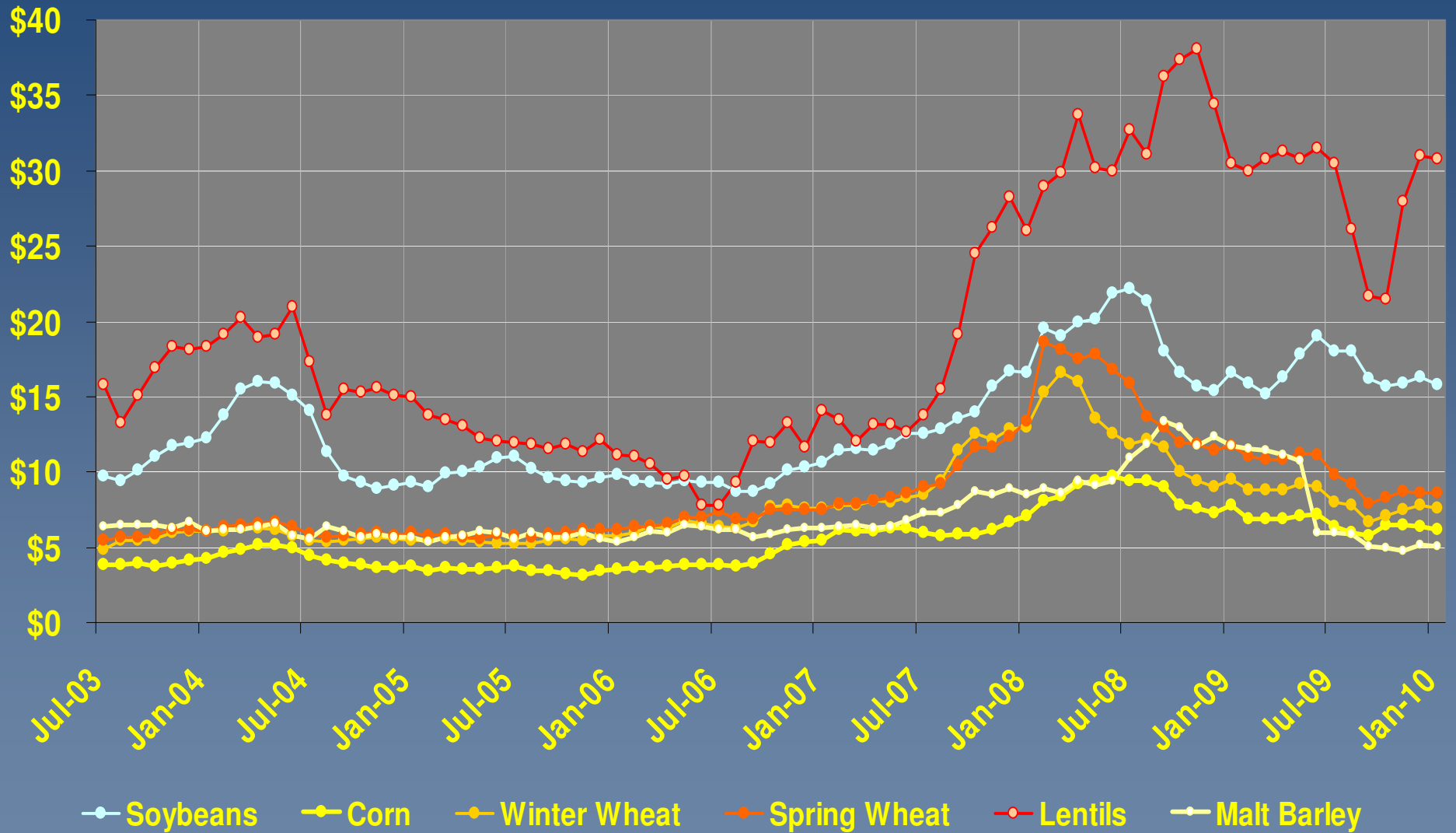
PULSE CROP PRICE TRENDS

Comparison With Other Crops

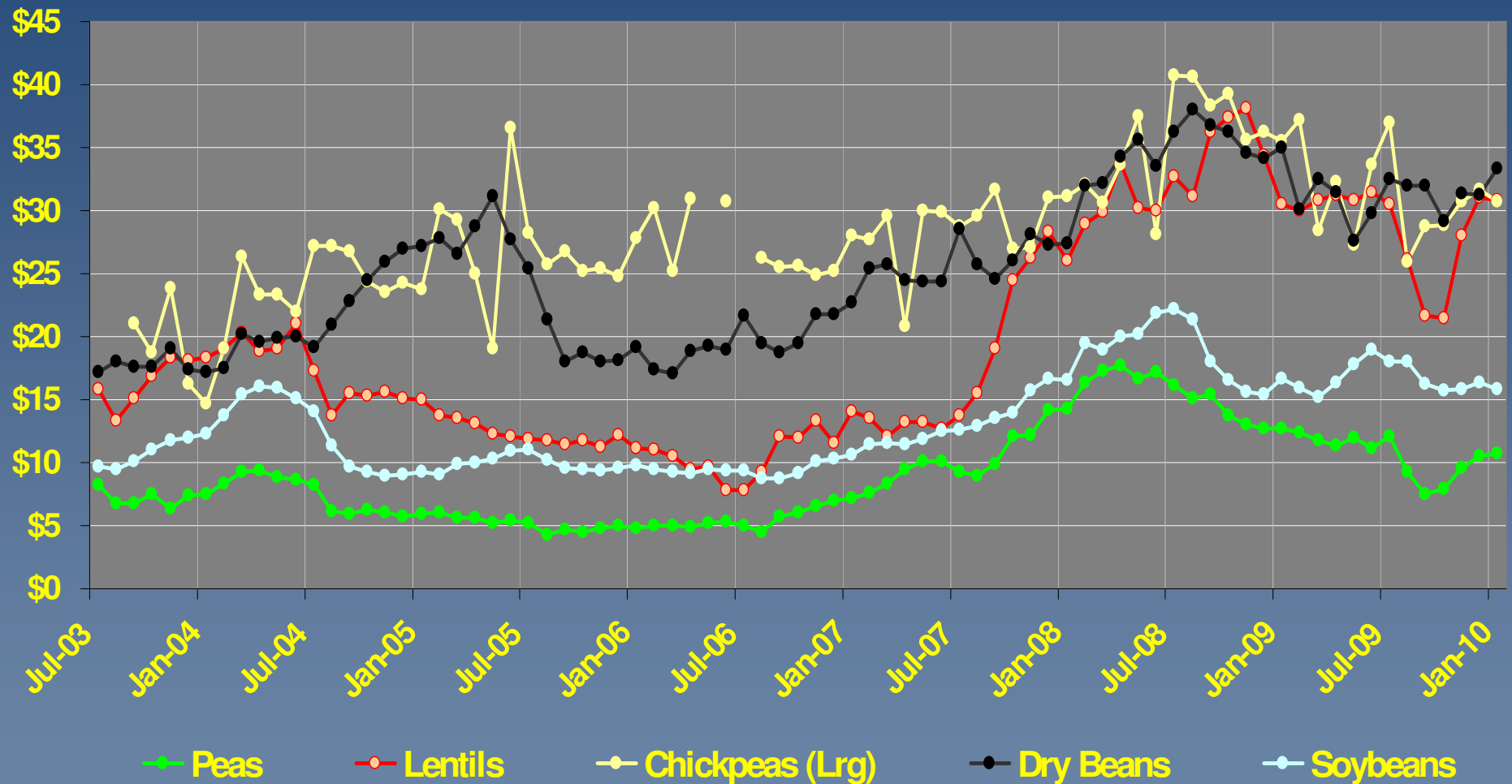
U.S. Commodity Prices - Monthly Averages (\$/cwt)



U.S. Commodity Prices - Monthly Averages (\$/cwt)



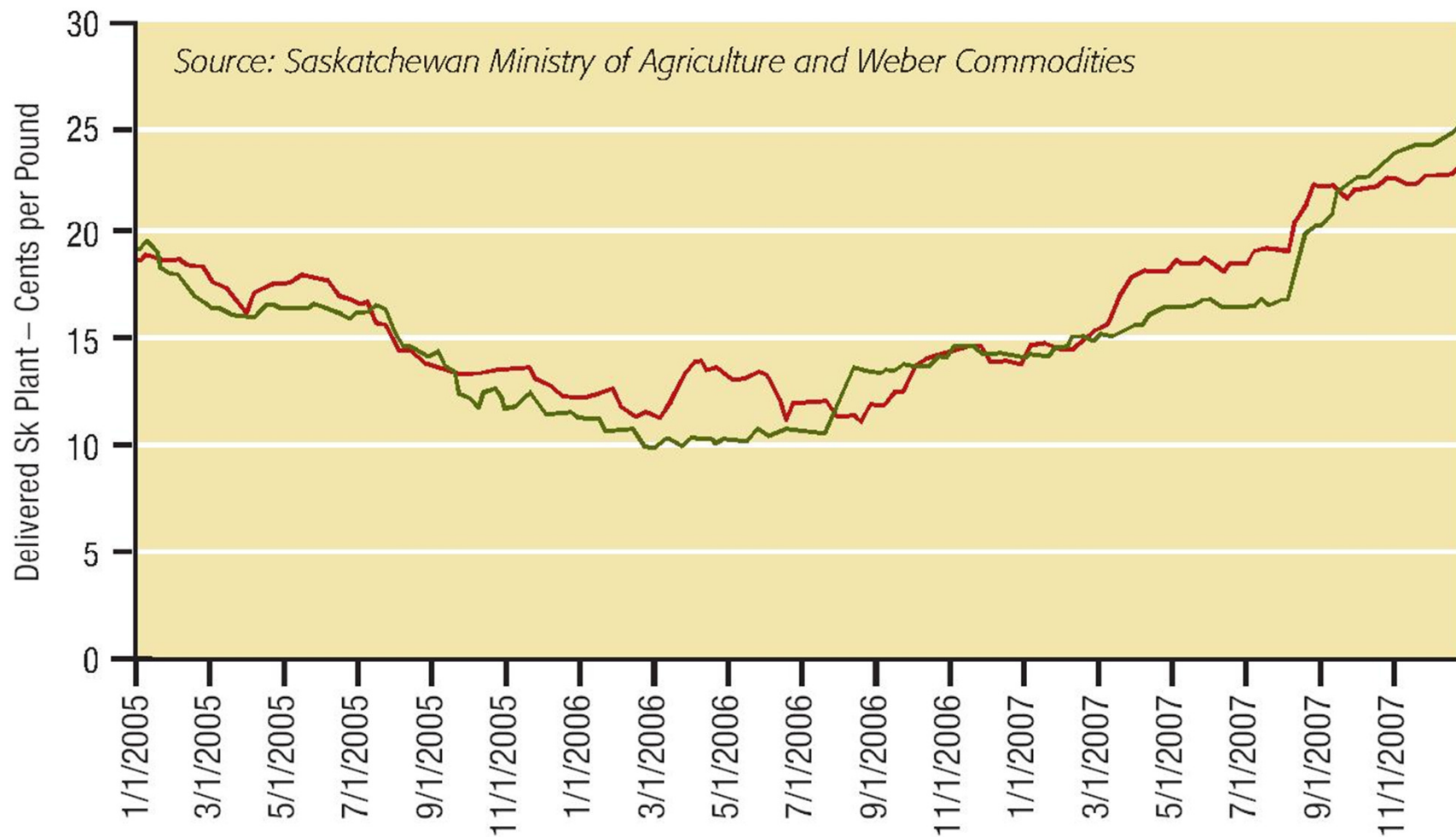
U.S. Commodity Prices - Monthly Averages - Legumes (\$/cwt)



PULSE CROP ECONOMICS

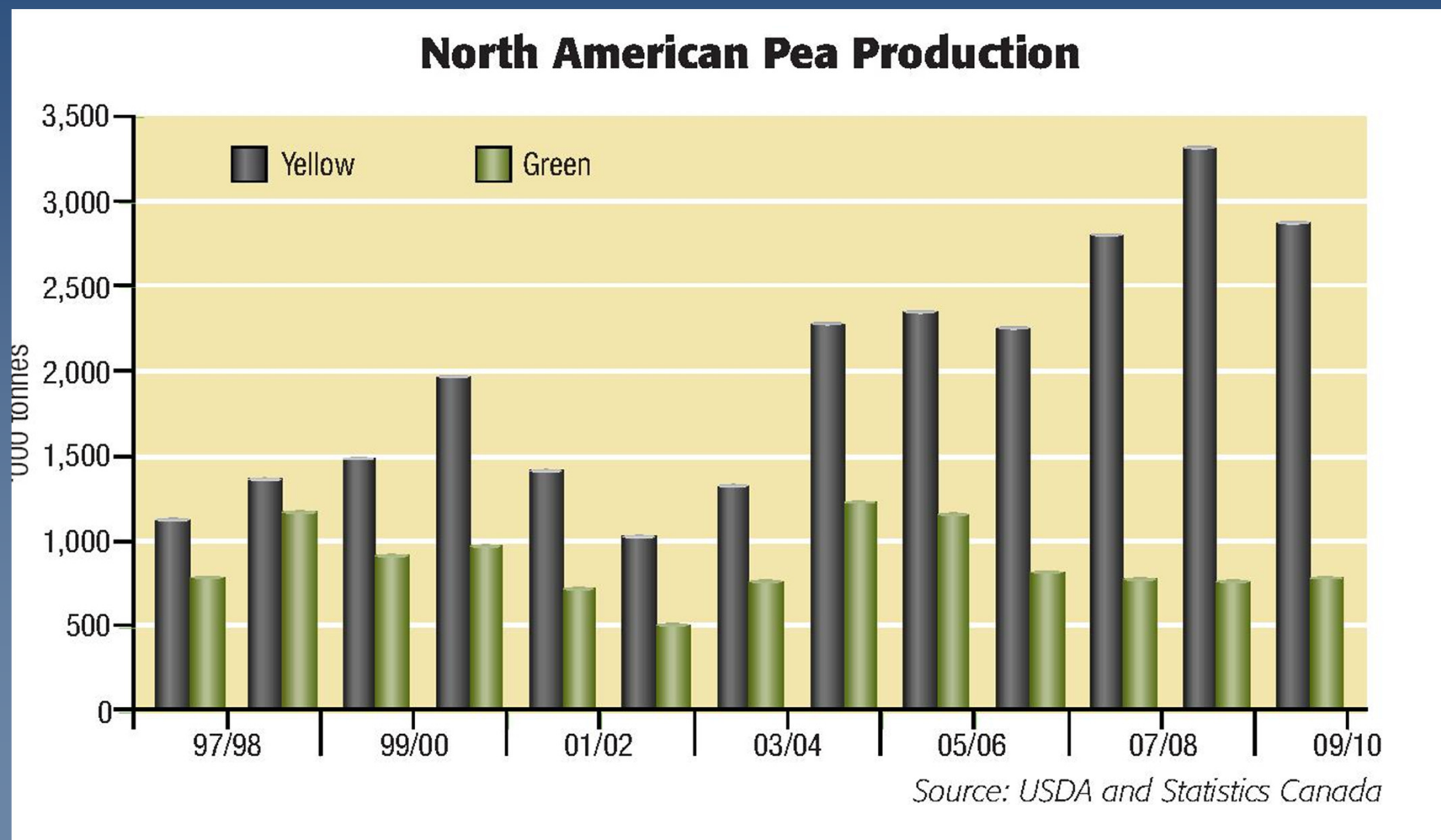
SASKATCHEWAN RED & GREEN LENTIL PRICES TRENDS (2005 – 2007)

Red & Large Green Lentil Prices – 2005-07



PULSE CROP ECONOMICS

NORTH AMERICAN PEA PRODUCTION TRENDS (1997 – 2009)



PULSE CROP ECONOMICS

Canada Lentils: 2009 & Projected 2010 Plantings (acres)

Source: STAT Publishing

	Large Green	Medium Green	Small Green	Extra Small Red	Small Red
2009	830,000	49,000	250,000	252,000	1,008,000
2010 – Spring Projection	865,000	59,000	240,000	483,000	1,542,000
2010 – July Projection	1,035,000	56,400	261,000	328,000	1,309,700

	Green	Red	
2009	1,129,000	1,260,000	2,389,000
2010 – Spring Projection	1,164,000	2,025,000	3,189,000
2010 – July Projection	1,352,400	1,637,700	2,990,100

PULSE CROP ECONOMICS

Canada Lentils: 2009 & Projected 2010 Production (metric tons)

Source: STAT Publishing

	Large Green	Medium Green	Small Green	Extra Small Red	Small Red
2009	516,900	32,000	171,200	154,100	630,000
2010 – Spring Projection	425,100	34,500	125,200	254,700	838,600
2010 – July Projection	554,000	35,900	148,200	188,400	775,700

	Green	Red	
2009	720,100	784,100	1,504,200
2010 – Spring Projection	584,800	1,093,300	1,678,100
2010 – July Projection	738,100	964,100	1,702,200

PULSE CROP ECONOMICS

Canada Lentils: Projected 2009 & 2010 Ending Stocks (metric tons) & Stocks-to-Use Ratio

Source: STAT Publishing

	Large Green	Medium Green	Small Green	Extra Small Red	Small Red
2009/10 Spring 2010 Projection	80,000 18%	5,000 17%	33,000 23%	25,000 18%	91,000 17%
2009/10 July 2010 Projection	9,200 2%	1,000 3%	11,300 7%	8,600 6%	18,800 3%
2010/11 Spring 2010 Projection	79,000 19%	12,000 44%	27,000 21%	122,000 67%	339,000 57%
2010/11 July 2010 Projection	69,800 14%	6,200 20%	12,500 9%	60,800 45%	159,600 25%

PULSE CROP ECONOMICS

GLOBAL PERSPECTIVE:

India: largest producer, consumer, importer of pulse crops

- **Production: Over 50 million acres of pulse crops**

- about 3.7 million acres of lentils
- 63% of pulses grown in the winter season

- **Consumption: should be 22 million metric tons (to meet dietary recommendations)**

- Production from two harvests is about 16 million metric tons
- Gap (recommended consumption vs production) has doubled every decade in the last 30 years
- In the last 10 years, the gap has averaged 5.3 million metric tons/yr

- **Imports: Normally imports about 3 million metric tons**

PULSE CROP ECONOMICS

GLOBAL PERSPECTIVE:

Major Producers:

- **India**
- **Canada**
- **Turkey**
- **United States**
- **Australia**
- **Ukraine**
- **France**
- **China**
- **Germany**
- **Russia**
- **Pakistan**

PULSE CROP ECONOMICS

GLOBAL PERSPECTIVE:

Major Exporters:

- **Canada**
- **Turkey**
- **Australia**
- **United States**
- **Ukraine**
- **France**

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GLOBAL PERSPECTIVE:

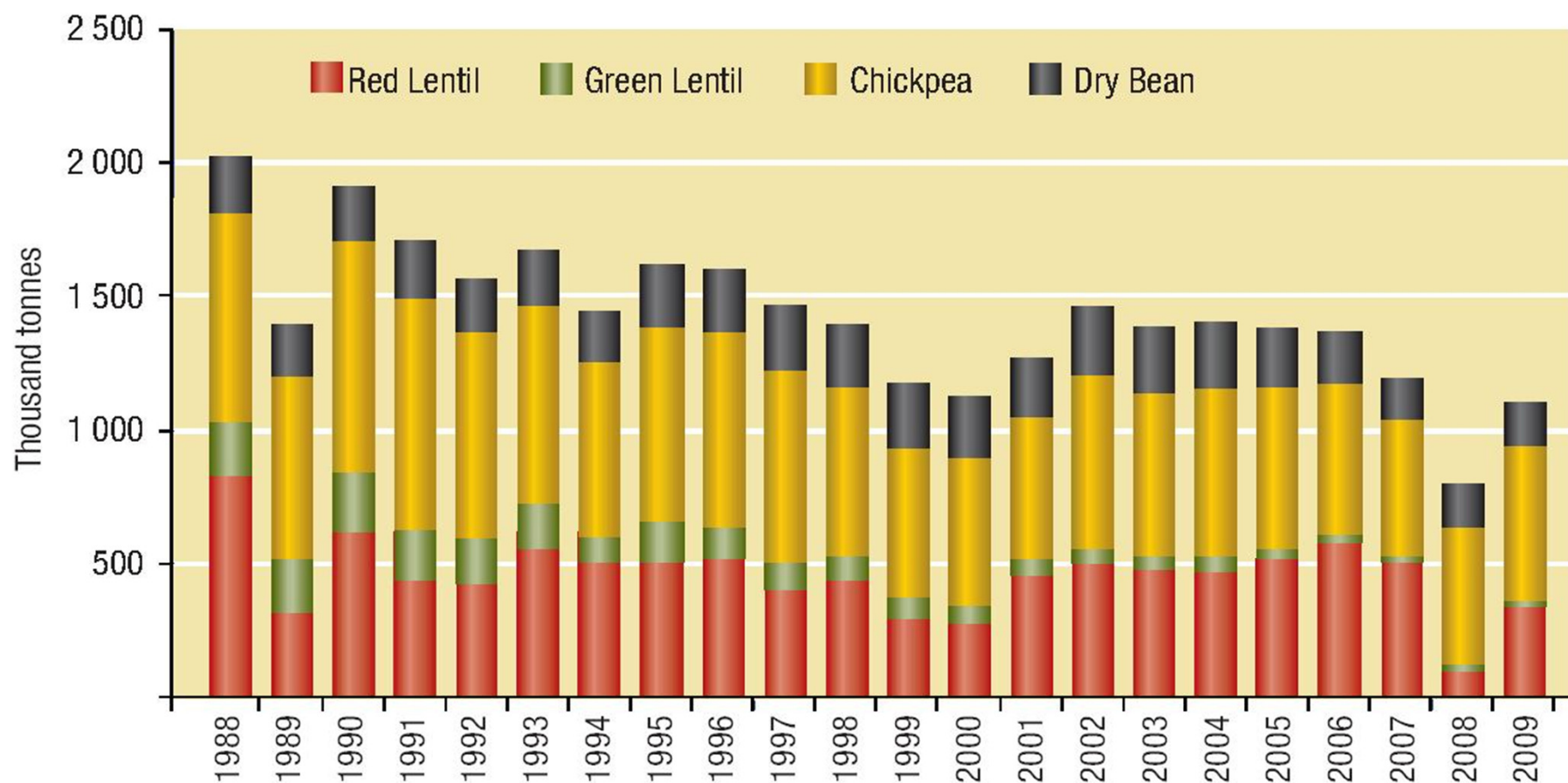
Major Importers:

- **India**
- **Bangladesh**
- **China**
- **Pakistan**
- **Sri Lanka**
- **North Africa Countries: Egypt, Algeria, Morocco**
- **Columbia**
- **Peru**
- **Mexico**
- **Spain and other European Countries**
- **Turkey (at times)**

PULSE CROP ECONOMICS

TURKEY PULSE PRODUCTION (2009 Estimate & 2010 Forecast)

Major Pulse Production - Turkey



Source: Republic of Turkey

PULSE CROP ECONOMICS

GLOBAL PULSE CALENDAR:

May – June: Turkish Harvest

June – Sept: Indian Monsoon Rains

Late July – Mid September: U.S. / Canada Harvest

October: Indian Kharif Crop Harvest

- mostly beans: pigeon peas, mung beans, urd beans, and other crops - any shortfalls in these results in substitution

November / December : Australian Crop Harvest

Late February - Early April: Indian Rabi Crop Harvest

Lent: South American / Latin America Increased in Pulse Consumption

PULSE CROP ECONOMICS

TRENDS DRIVING PULSE MARKETS

More Demand Driven than Supply Driven

From NDSU Pulse Crop Marketing Guide (2006):

- **Population Growth – demand for protein / vegetable protein**
- **Globalization – trade + changes in land use elsewhere**
- **Weather Patterns**
- **Health Conscious Affluent Markets**

Other:

- **Increased global meat consumption driving commodity markets**
- **Currency Exchange Rates**
 - **Stronger Canadian Dollar makes US exports more competitive**

xe USD per 1 CAD

INV

CAD/USD close: **0.94875**, low: **0.61973**, high: **1.09041**

30 Jun, 2000 23:24 UTC - 29 Jun, 2010 23:24 UTC



DISCLAIMER

The economic returns presented are estimates, **not fact**.

Make estimates that are applicable to your:

- farm,
- yield history,
- growing conditions, and
- your perception of risk.

To Discuss More, Contact:

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406.444.2402

www.agr.mt.gov/business/cropandrotationtools.asp

